BTEC Assignment Brief

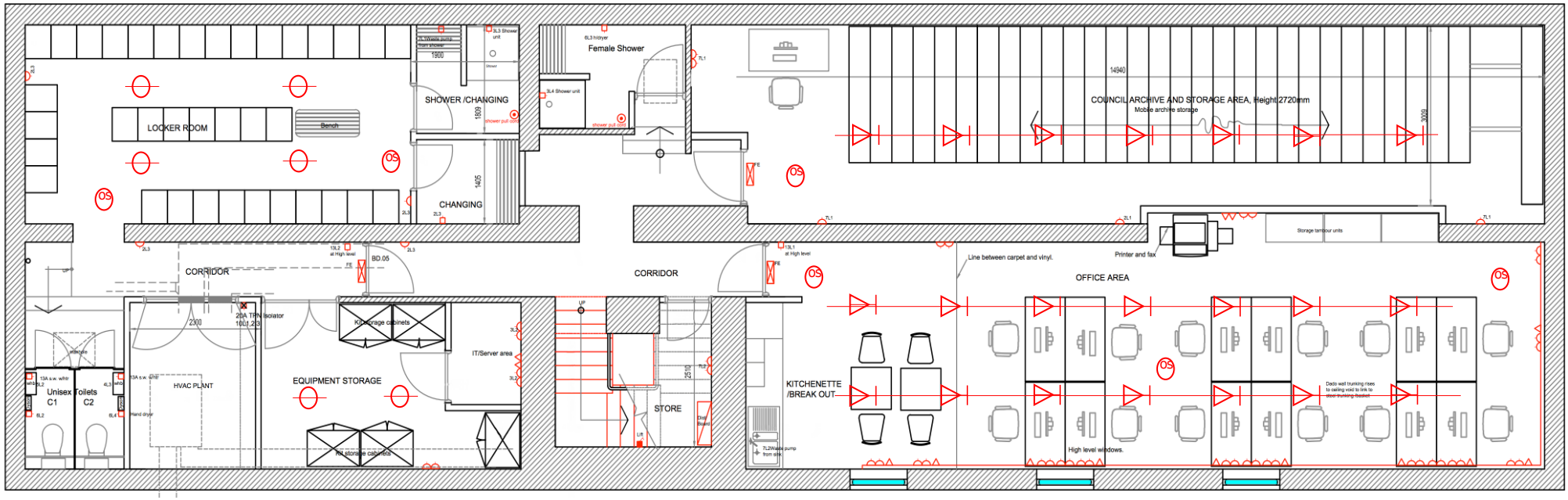
Qualification	Pearson BTEC International Level 3 National Diploma in Construction and the Built Environment Pearson BTEC International Level 3 National Extended Diploma in Construction and the Built Environment
Unit number and title	Unit 25: Building Services Control Systems
Learning aim(s)	B: Apply the principles of building services control systems and the function and operational characteristics of control systems C: Develop an appropriate specification and schematic drawings for building services control systems
Assignment title	Control Systems: Sensors, Strategies and Operational Benefits
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You have been employed as a building services technician in the design office of a large Building Services Design Consultancy practice. The practice is currently completing a design for an office conversion and you have been asked to join the design team part way through the project. A layout plan for a floor of the office is shown in Figure 1. The office has a floor to ceiling height of 3m, and the internal walls and ceilings are plastered and finished in white paint. The users of the office will be at computers screens for most of the day. One area of the office will be used as a document archive, and there will be also be a changing area and lockers for those office workers walking or cycling to work.
Task 1	The chief building services engineer has asked you to review a floor plan of a part finished electrical and lighting system drawing for an office, started by a colleague who has now left the company (refer to Figure 1) You are to complete their work, you should to: (a) Review the drawing and produce a functioning and working control scheme design and strategy for the electrical, lighting and fire safety system, including smoke detectors and alarms. This scheme should be presented on a detailed schematic drawing(s) indicating the location of all necessary sensors and control components, together with controller requirements. You should research and annotate the drawing with all required sensors and control components making reference to manufacturer's details as appropriate. The annotation must cover why a particular component is required, its function and behaviour and how it satisfies the requirements of the office. (b) To assist the office facilities manager, you are also to prepare a report to support your drawings. The report should explain the features, characteristics and operating

	principles of the control devices. The report should include a detailed explanation of the office control systems operational sequence (from initial start, through the operational stage to eventual shut down). This should include the roles of each control component, together with typical set points, sensed and controlled condition values. The report must justify the rationale used in the production of a control strategies and design and demonstrate how proposed office control systems satisfy the operational needs of the office users highlighting and potential drawbacks.
Checklist of evidence required	A report, well referenced to manufacturer literature and data and making use of correct terminology. The written text is to be supported a completed schematic drawing, and other images, photographs, charts and calculations as appropriate.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
25/B.D2	Produce a comprehensive system design that fully meets the requirements of a building control system, for a given scenario
25/C.D3	Justify the selection of an appropriate building services control system and control components, including details of the control strategy and schematic drawings which clearly communicate the designs, for a given scenario.
25/B.M2	Produce a detailed control system design that mostly meets the requirements of the building services control system.
25/C.M3	Select an appropriate building services control system and control components, including detailed control strategy and detailed schematic drawings, for a given scenario
25/B.P2	Produce a systems diagram for a simple building services control system.
25/B.P3	Describe the sensors, actuators and controllers to be installed for a simple building services control systems, for a given scenario.
25/C.P4	Select an appropriate building services control system for a given scenario.
25/C.P5	Select the appropriate control components for use within a building services control system for a given scenario.
25/C.P6	Explain the behaviour of the controls selected for a simple building control system, for a given scenario.

Sources of information to support you with this Assignment	David V Chadderton–Building Service Engineering, 6th edition, (Routledge, 2012) ISBN 9780 415699327 Fred Hall and Roger Greeno- Building Services Handbook, 9th Edition (Routledge, 2017) ISBN 9781 138244351 www.cibse.org
Other assessment materials attached to this Assignment Brief	Office electric and lighting service plan



Notes

- Twin 13A Socket outlet
- Single 13A socket outlet
- 13A Switched fused conn.unit.
- 20A DP switch with neon
- Twin Data outlet.
- Manual call point
- FE Illuminated fire exit sign
- 20A Isolator
- Indirect LED light line suspended from ceiling to provide 500 lux.
- LED ceiling light to provide 100 lux
- OS Occupation Sensor
- EM Energy Metre

Figure 1: Office Electrical and Lighting Services

0 1 2 3 4 5m

Scale

Source https://www.rbkc.gov.uk/idoxWAM/doc/Drawing-1570838.pdf?extension=pdf&id=1570838&location=volume2&contentType=application/pdf&pageCount=1
Note figure is amended from source

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